CORPORATE FORECASTING

THE CHANGING EMPLOYMENT STRUCTURE OF ALBERTA AND EDMONTON, 1961 TO 1986

Tim Ford

Research Paper No. 19

THE CITY OF Edmonton PLANNING AND BUILDING

Research Paper 19

The Changing Employment Structure of Alberta and Edmonton, 1961 to 1986

by

Tim Ford

IMPORTANT NOTE

This Technical Paper has been prepared by the Corporate Forecasting Group, Long Range Planning Branch, Planning and Building Department. The Paper documents research results as part of an ongoing forecasting activity. Neither the results or methods have been endorsed by the City of Edmonton.

September, 1987

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ACKNOWLEDGEMENTS

I wish to express thanks to Jong Huang and Patrick Walters of the Corporate Forecasting Group, Long Range Planning Branch for reviewing earlier drafts of this paper and offering useful comments and suggestions.

My special thanks are extended to Harvey Crone, Director of the Corporate Forecasting Group, for his many valid comments and suggestions in reviewing this paper. Any errors or omissions are solely my responsibility.

Figure 1
Labour Force Composition

* INFORMATION INTENSIVE SECTOR EMPLOYMENT
(Printing & Publishing group only component of manufacturing industry division)

THE CHANGING EMPLOYMENT STRUCTURE OF ALBERTA AND EDMONTON, 1961 TO 1986

1. INTRODUCTION

This paper analyzes the changing employment structure of Alberta and Edmonton over the period 1961 to 1986, concentrating on the dominance of employment growth in the service producing industries over the goods-producing industries in this period. By 1986, three out of every four jobs in the province and four out of every five jobs in Edmonton were in the service-producing industries.

The economy can be divided into two main components, the goods producing and service producing industries, with the following industries included in each:

- Goods-Producing

  agriculture; manufacturing; construction; mining/oil and gas wells; utilities; forestry and fishing.

- Service-Producing

  transportation and communications; finance; insurance and real estate (F.I.R.E.); community, business and personal services; public administration

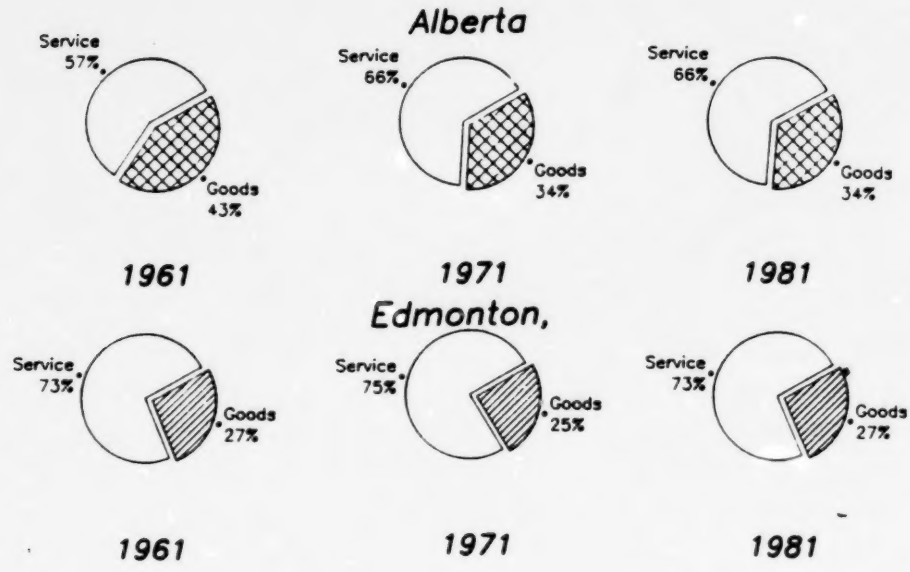
The service-producing industries are subdivided into commercial and non-commercial services, (see Figure 1).

In addition, the paper looks at employment growth in the information intensive sector of the economy. Woods Gordon, in their report, Tomorrow's Customer's, defines the information sector as containing industries that provide information - related products and services or supply companies in this sector. This sector combines employment from both the goods and service producing industries and is comprised of the following industries: F.I.R.E., public administration, education, communication, services to business management, amusement and recreation services, and printing and publishing. The information sector provided jobs for one in five Albertans and one in four Edmontonians in 1981.

Also, the paper identifies the growth industries over the period 1961 to 1986 by categorizing the industries into low, average and high labour force growth per annum. For the purpose of this study, low growth is defined as having an annual growth rate of less than the total labour force growth rate and high growth as being above the total labour force growth rate. Appendix A lists the method used to calculate the annual growth rates, while Appendix B contains data tables for Alberta and Appendix C provides data tables for Edmonton.

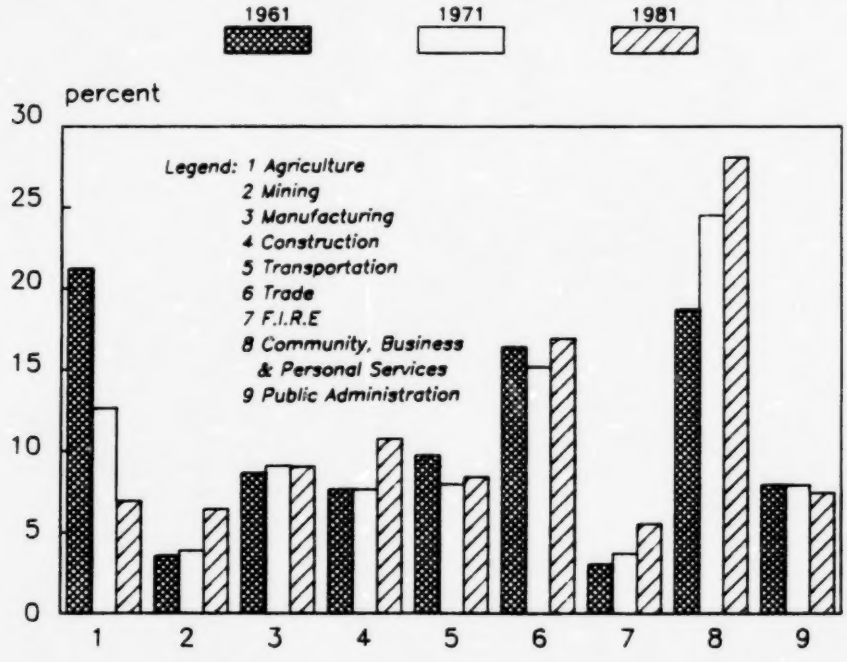
For the period 1961 to 1981, the total labour force from the three census years was used to analyze the changing employment structure since it provided a more reliable estimate of agricultural workers in the 1961 census year. For the 1981 to 1986 period, the data source was employment since it provided a more detailed breakdown by industry division at the provincial level that was not available using the labour force.

Figure 2 – Labour Force Share of Goods and Service Industries, Alberta and Edmonton



Source: Statistics Canada, Cat 94–543,94–742, 93–969

Figure 3 – Percentage Share of Labour Force by Industry Division, Alberta



Source: Statistics Canada, Cat. 94–543, 94–742, 93–969

2. LABOUR FORCE AND EMPLOYMENT GROWTH

2.1 Alberta

2.1.1 Strong Labour Force Growth 1961 to 1981

Over the 1961 to 1981 period, the Alberta labour force annual growth rate was higher than the national average of 3.1%, with the labour force growing by an average of 4.6% per year, from 489,511 to 1,199,975. Significant changes also took place in the structure of the labour force, as the province continued its employment shift to a service-dominated urban economy and employment in the information intensive industries increased.

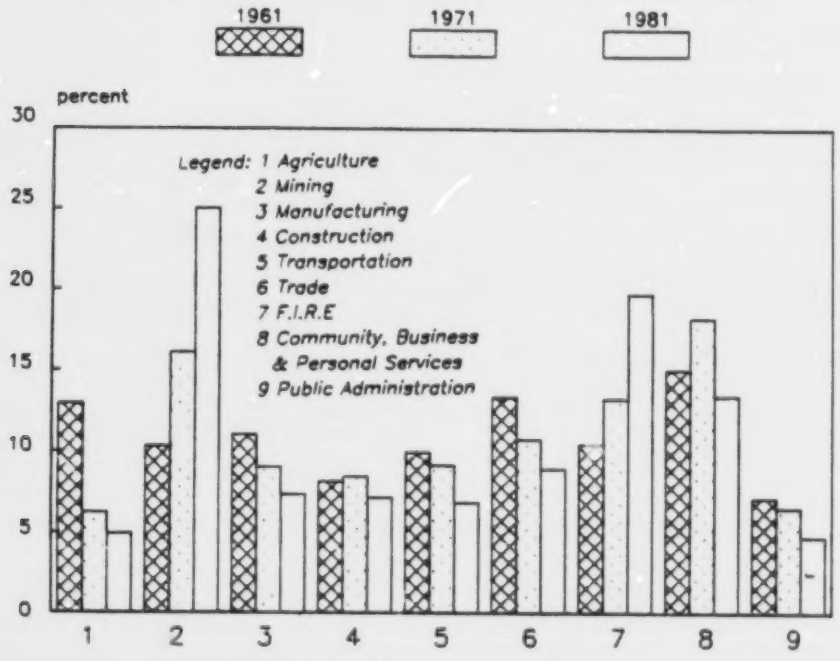
Emerging Dominance of Service Producing Industries, 1961 to 1971

The percentage of workers employed in the service producing industries grew steadily from 1961 to 1971. In 1961, 43% of all Albertans worked in the goods producing industries and 57% in the service industries. By 1971 though, only 34% were employed in the goods producing industries, while 66% were in the service industries (see Figure 2).

The decline in share of the goods producing labour force over this period resulted from severe losses in the agricultural labour force as its share dropped from 21.2% to 12.6%, (see Figure 3). Largely responsible for labour force losses in the agricultural sector was increasing productivity brought about by mechanization of farm machinery and equipment and increases in farm size.

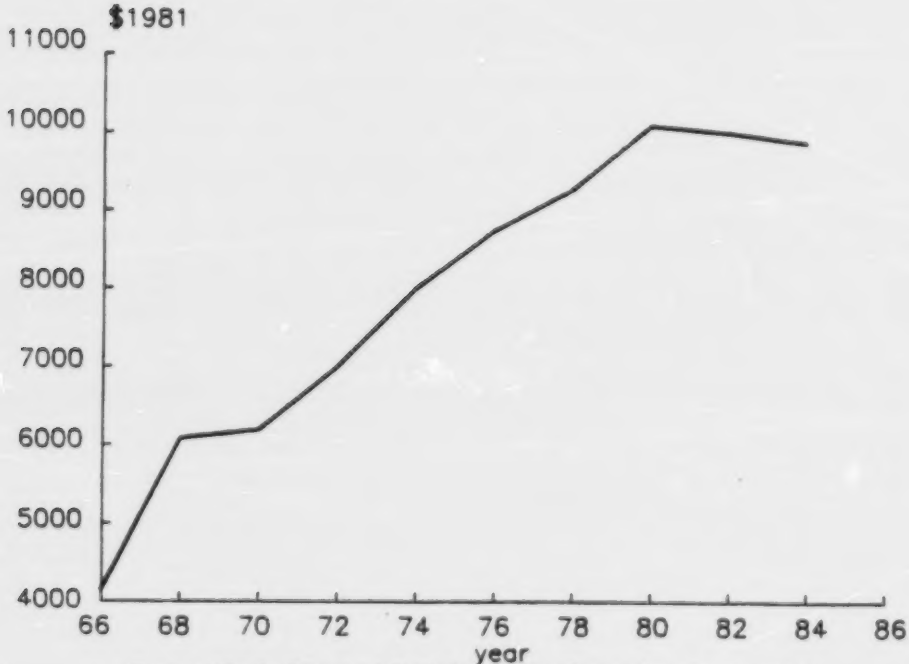
Labour force gains in the service producing industries resulted from a large increase in the community, business and personal services industry whose share increased from 18.7% to 24.5%. Within community, business and personal services, the strong growth components were in the non-commercial part of the service sector. Education had the largest share increase, expanding from 4.3% of the total labour force to 7.1% in 1971, while health and welfare grew from 4.7% to 6.2%. In the commercial part of the service sector, services to business management grew from 1.5% to 2.5%.

Figure 4 – Percentage Distribution of Alberta Gross Domestic Product, by Industry



Source: Alberta Bureau of Statistics, Alberta Economic Accounts, 1985

Figure 5 – Real Personal Disposable Income per Person, Alberta, 1966–1986



Source: Alberta Bureau of Statistics, Alberta Economic Accounts, 1985

Other industries whose shares increased were manufacturing (8.6% to 9.1%) and finance, insurance and real estate, (3.0% to 3.7%). The finance component accounted for most of the growth in the F.I.R.E. industry division. Industries whose shares declined were transportation (9.7% to 7.9%) and trade (16.4% to 15.1%). All other industries had little or no change in their employment shares. Labour force growth per annum according to the three levels outlined in this report is shown in Table 1.

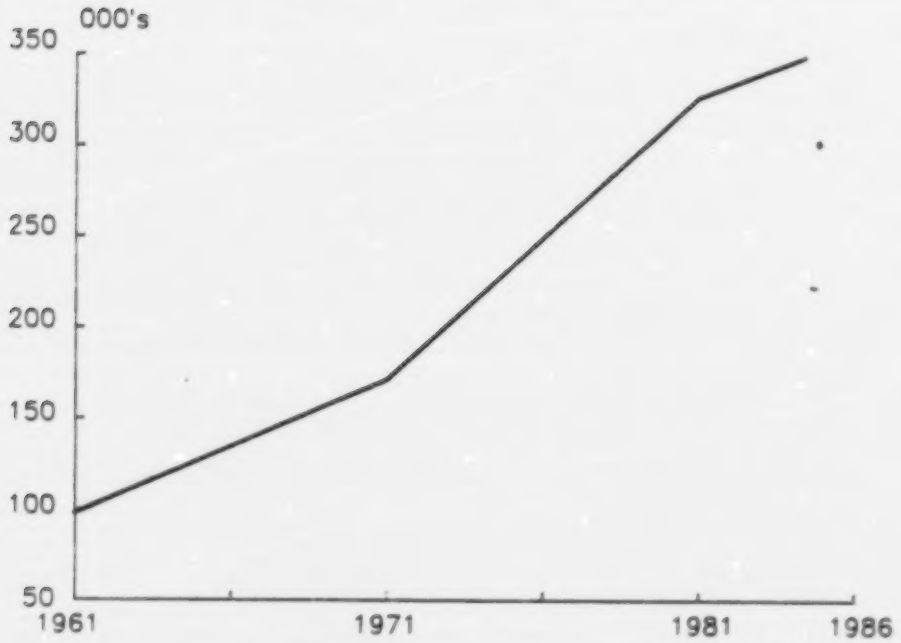
Goods Producing Industries Maintain their Share of Labour Force, 1971 to 1981

The 1970's was a period of high growth for virtually all sectors of the provincial economy. Fueled by the resource boom of the late 1970's, the goods producing sector maintained its labour force share at 34% over the 1971 to 1981 period. Despite a further loss of 6,000 agricultural workers in this period, the emerging dominance of the oil and gas industry as a major component of the Alberta economy helped to create employment in the goods producing sector. Between 1971 and 1981, the mining sector as a component of the gross domestic product increased its share from 16.1% to 21.4%, while employment in mining increased from 3.9% to 6.4%, (see Figure 4). Expansion of the mining sector enabled the construction sector to grow also. As a share of the total labour force, construction increased from 7.6% to 10.7% in 1971 and to 10.7% in 1981. The agricultural sector decreased its share from 12.6% to 6.9%.

A rapidly growing mining sector coupled with rising per capita income enabled Alberta's service sector to maintain its labour force share between 1971 and 1981 (Mansell and Wright, 1975). Growth in the mining sector provided employment opportunities in the service sector, particularly in transportation and F.I.R.E. As real personal disposable income per capita increased (see Figure 5), consumer demand for a wider variety of goods and services also increased, providing an impetus for service industry labour force growth.

Within the service producing industries, the transportation labour force increased its share of the total from 7.9% in 1971 to 8.4% in 1981, trade increased from 15.1% to 16.9%, F.I.R.E. from 3.7% to 5.5% and community services from 24.5% to 28.1%.

Figure 6 – Labour Force in Information Intensive Sector, Alberta



Source: Statistics Canada, Cat. 94-543, 94-742, 93-969

Table 1

Annual Labour Force Growth Rates by Industry Division, Alberta, 1961 to 1971

Low Growth		Average Growth (All industries, 3.5%)		High Growth	
Agriculture	(-0.5)	Construction	(3.5)	Mining	(4.4)
Forestry	(-2.9)	Administration	(3.4)	Manufacturing	(4.0)
Transportation	(1.4)			F.I.R.E.	(5.6)
Trade	(2.7)			Community Serv.	(6.3)

Source: Table B.3 Appendix B

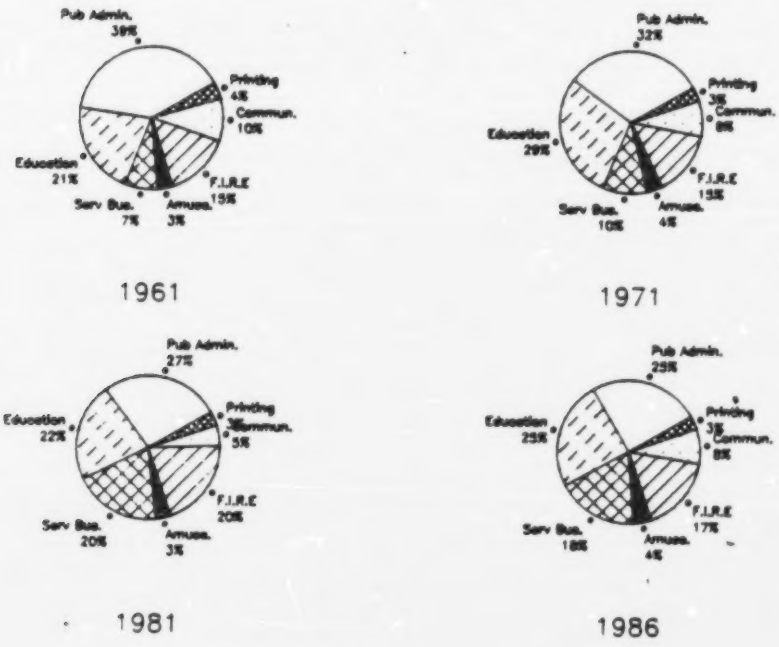
Table 2

Annual Labour Force Growth Rates by Industry Division, Alberta, 1971 to 1981

Low Growth		Average Growth (All industries, 5.7%)		High Growth	
Agriculture	(-0.5)	Manufacturing	(5.6)	Forestry	(7.0)
Admin.	(5.1)			Mining	(11.2)
				Construction	(9.4)
				Transportation	(6.3)
				Trade	(6.9)
				F.I.R.E.	(10.1)
				Comm. Services	(7.2)

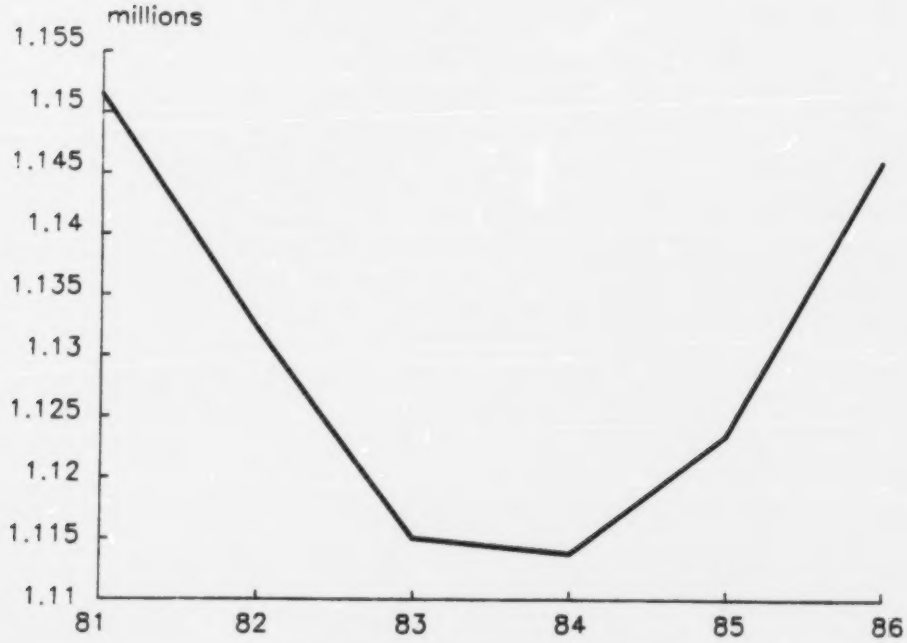
Source: Table B.3 Appendix B

Figure 7 – Labour Force Share in Information Intensive Industries, Alberta



Source: Statistics Canada, Cat 94–543,94–742, 93–969

Figure 8 – Alberta Employment, 1981–86



Source: Statistics Canada, Labour Force Survey

Public administration declined in share from 7.9% to 7.4%. Table 2 lists labour force growth per annum for the period 1971 to 1981.

Strong Growth in Information Intensive Employment, 1961 to 1981.

In 1961, 98,000 Albertans or one in every five, worked in the information intensive sector of the economy. By 1981, this number had risen to 327,270 or just over one in every four jobs (see Figure 6). Within this sector, services to business management and F.I.R.E. experienced the fastest growth. Between 1961 to 1971 services to business management grew by 9.1% per year, while F.I.R.E. grew by 5.6%. In the 1971 to 1981 period these industries grew by 14.1% and 10.1% per annum, respectively.

In 1961 and 1971, 60% of all information sector employment was concentrated in the non-commercial components, i.e. in education and public administration. However, by 1981 their share had declined to 49% as the other commercial components of this sector, particularly services to business management and F.I.R.E., substantially increased their shares (Figure 7).

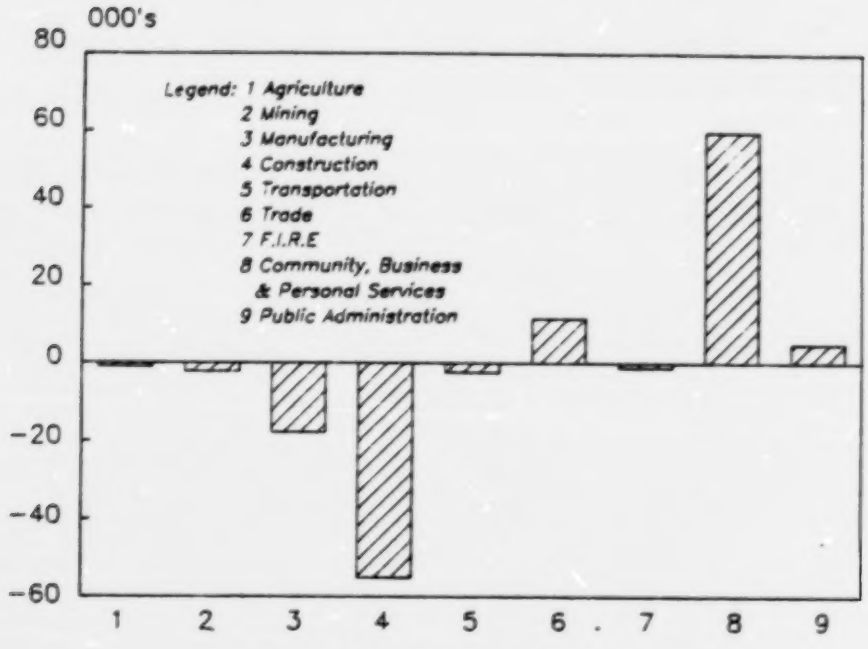
2.1.2 Employment Stagnation, 1981 to 1986

The provincial employment performance over the 1981 to 1986 period was in sharp contrast to the previous 20 year period. This period was marked by the 1981 to 1982 economic recession that sharply reduced employment levels in the province from the 1981 high of 1.151 million to a low of 1.113 million before rebounding to 1.146 million in 1986 (see Figure 8). This section uses employment to measure the changing employment structure instead of the labour force which was used from 1961 to 1981.

Further Dominance of Service Sector Industries, 1981 to 1986

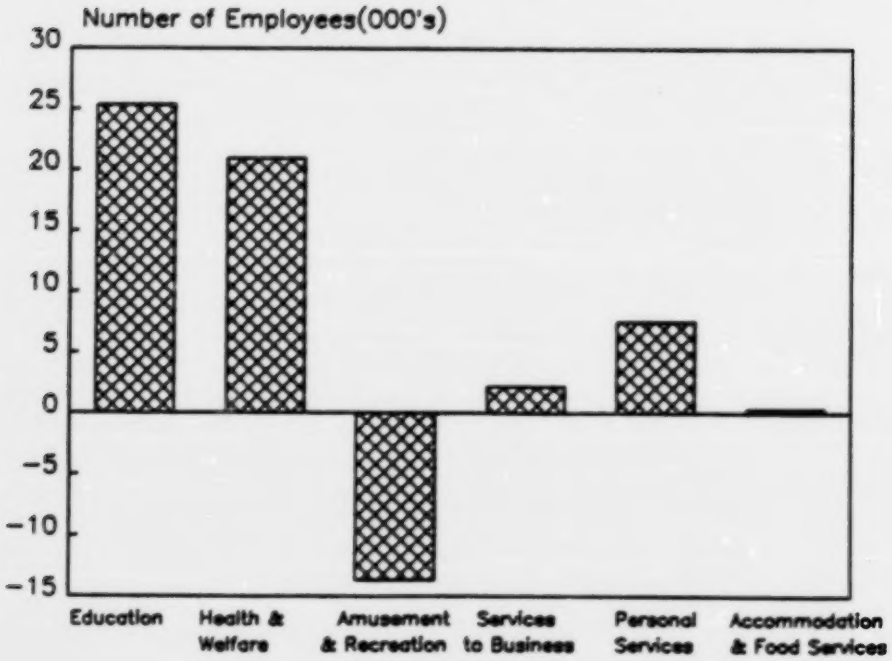
The period 1981 to 1986 was marked by a more pronounced shift to service sector employment. In this period, employment in the service-producing industries grew from 66.5% of total employment in 1981 to 73% in 1986.

Figure 9 – Employment Change by Industry Division, Alberta, 1981–86



Source: Statistics Canada, Labour Force Survey

Figure 10
Employment Change in Community, Business and Personal Services, Alberta, 1981–1986



Despite an overall job loss in the six year period, three industries, all in the service-producing sector, managed an employment increase. Employment in trade increased by 11,000 to 214,000, community, business and personal services by 59,500 to 382,500, and public administration grew by 5,000 to 84,500. The changes are shown in Figure 9. Within the community, business and personal services industry division the main growth components were education and health and welfare which accounted for 44,400 new jobs in this period (see Figure 10).

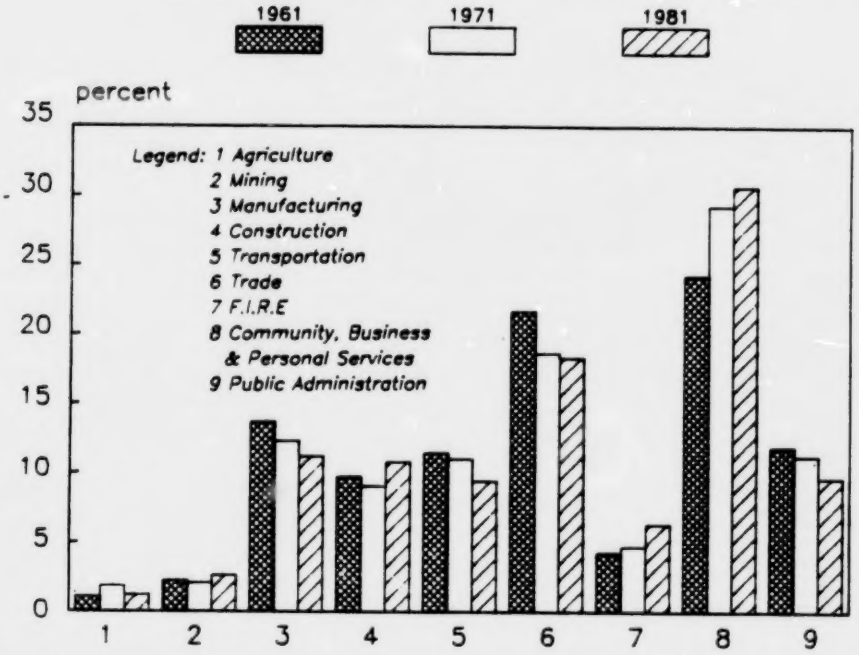
Industries showing the largest employment losses were in the goods producing sector. Construction employment in 1986 was 67,000, a drop of 55,000 since 1981. In manufacturing 18,000 jobs were lost over the 1981 to 1986 period for a total employment of 88,500 in 1986. All other industries had losses of less than 2,500.

Modest Growth in Information-Intensive Employment, 1981 to 1986.

Employment gains in education and communication enabled the information intensive sector to post a modest employment increase between 1981 and 1986. Over this period, information intensive employment increased by 1.1%, however, most of this increase occurred between 1981 and 1982. Since 1982, there has been virtually no employment growth in this sector. As a share of total employment, it has increased from 25.5% in 1981 to 28.5% in 1986, as a result of an employment decline in the total number of employed.

Within this sector, only education, communication, and services to business management experienced employment growth. Education grew by 23,500 jobs between 1981 and 1986, while communication grew by 3,500 jobs and services to business management by 2,600 jobs. All other components lost employment, with the heaviest losses experienced by public administration, losing 4,800 jobs. Figure 7 illustrates the changing shares in the information sector over this period.

Figure 11 – Percentage Share of Labour Force by Industry Division, Edmonton



Source: Statistics Canada, Cat. 94–543, 94–742, 93–969

2.2 Edmonton

2.2.1 Labor Force Growth 1961 to 81

The Edmonton labour force grew at a faster rate than the province between 1961 to 1981. In this period the city's labour force expanded by 241,954 or 5.4% at average annual rates. Both the goods and service producing sectors maintained their employment shares, however, significant changes occurred to the structure of the service sector.

Dominance of Service-Producing Industries, 1961 to 1971

Unlike the significant shift to the service producing industries that occurred to the provincial labour force between 1961 to 1971, Edmonton's labour force was already dominated by service producing industries. In 1961, 73% of the work force was employed in service industries and 27% in the goods producing industries. By 1971, service producing industries increased their share slightly to 75%, while the goods sector dropped to 25% (see Figure 2).

The dominant industry in 1961 was community, business and personal services with 24% of the total labour force (see Figure 11). This was followed by trade with 22%, manufacturing with 14%, and transportation with 11%. By 1971, these industries remained as the largest employers in the city with community, business and personal services increasing to 29%, trade falling to 19%, manufacturing falling to 12.2%, and transportation remaining at 11%. All other industries experienced only small changes in their employment shares. Labour force growth by industry per annum is shown in Table 3.

Strong Labour Force Growth, 1971 to 1981

The period 1971 to 1981 was characterized by strong labour force growth in Edmonton with the total labour force expanding by 71% to 373,530. In this period there was a slight shift to the goods-producing industries, which accounted for 27% in 1981 compared to 26% in 1971. Partially responsible for this shift was the

Table 3

Annual Labour Force Growth Rates by Industry Division, Edmonton, 1961 to 1971

Low Growth		Average Growth (All industries, 5.2%)	High Growth	
Mining	(3.9)		Agriculture	(10.8)
Manufacturing			Forestry	(7.1)
Construction	(4.0)		F.I.R.E.	(5.7)
Transportation	(4.3)		Community Serv.	(6.7)
Trade	(3.2)			
Administration	(4.1)			

Source: Table C3 Appendix C

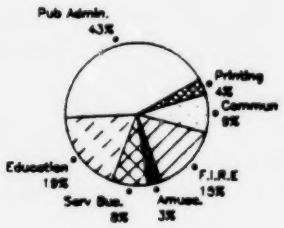
Table 4

Annual Labour Force Growth Rates by Industry Division, Edmonton, 1971 to 1981

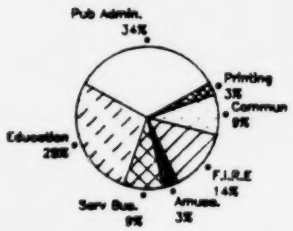
Low Growth		Average Growth (All industries, 5.5%)	High Growth	
Agriculture	(1.6)		Mining	(8.7)
Manufacturing	(5.2)		Construction	(8.1)
Transportation	(4.5)		Trade	(6.0)
Administration	(4.6)		F.I.R.E.	(9.3)
			Services	(6.7)

Source: Table C4 Appendix C

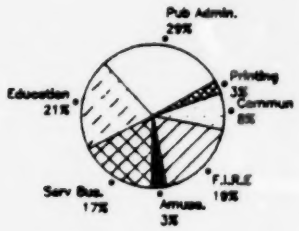
Figure 12 – Labour Force Share in Information Intensive Industries, Edmonton



1961



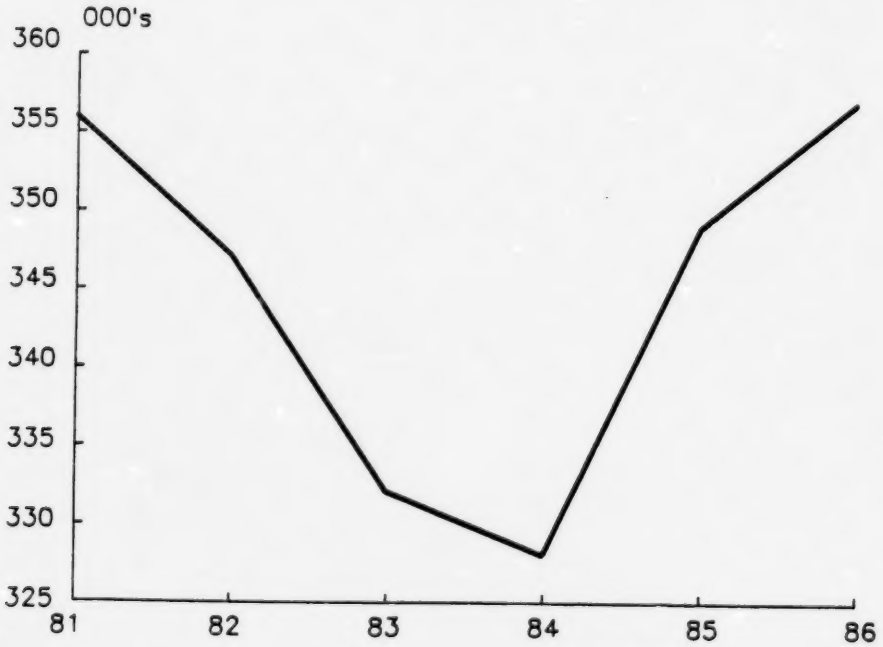
1971



1981

Source: Statistics Canada, Cat 94–543, 94–742, 93–969

Figure 13 – Edmonton Employment, 1981–86



Source: Statistics Canada, Labour Force Survey

increase to the construction and mining labour forces whose shares increased from 9.0% and 2%, to 10.8% and 2.6% respectively. This increase reflected the resource boom at the provincial level. The manufacturing labour force declined to 11.1% in 1981 from 11.4% in 1971.

In the service-producing industries, the labour force in F.I.R.E. increased to 6.3% in 1981 from 4.7% in 1971, while community, business and personal services grew from 29.2% to 30.6%. Declines in shares were experienced in transportation (11% to 9.4%), trade (18.6% to 18.3%), and public administration (11.2% to 9.6%). Table 4 lists labour force growth per annum by industry from 1971 to 1981.

Growth in Information Intensive Sector Employment, 1961 to 1981

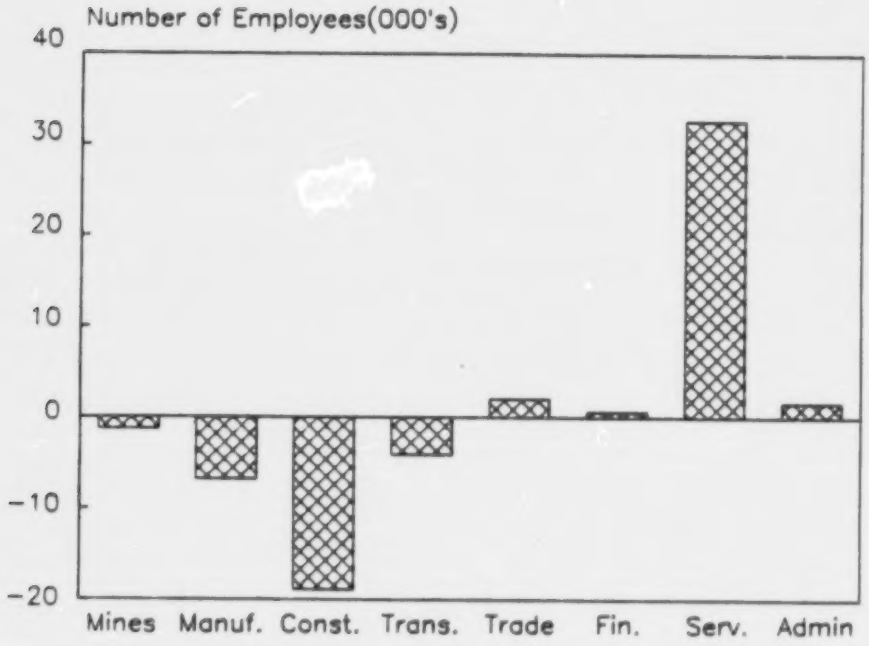
The City's labour force had a higher representation of information intensive employment than the province over the 1961 to 1981 period. In 1961 just over one in every four jobs were in this sector, however, by 1981 one in every three jobs were in the information intensive sector. In the 1961 to 1971 period the fast growth industries in this sector were education and services to business management which grew by 10.9% and 7.7% per annum respectively. In the 1971 to 1981 period services to business management and F.I.R.E. experienced the fastest growth, increasing by 13.4% and 9.3% per annum respectively.

Following the provincial trend, 61% of employment in the information sector in 1961 and 1971 was concentrated in the non-commercial component, i.e. education and public administration. By 1981, its share had declined to 49% of the total information sector as the other commercial components, particularly services to business management and F.I.R.E., increased their shares (see Figure 12).

2.2.2 Employment Decline, 1981 to 1986

With the onset of the 1981-1982 economic recession, employment levels in Edmonton dropped substantially. In 1981, total employment was estimated at 356,000 before dropping to 328,000 in 1984 and climbing back to 357,000 in 1986. With an increasing labour force in this period, the unemployment rate jumped to 14.1% in 1984 before dropping to 11.5% in 1986 (see Figure 13).

Figure 14– Employment Change by Industry, Edmonton, 1981–1986



Source: Statistics Canada, Labour Force Survey

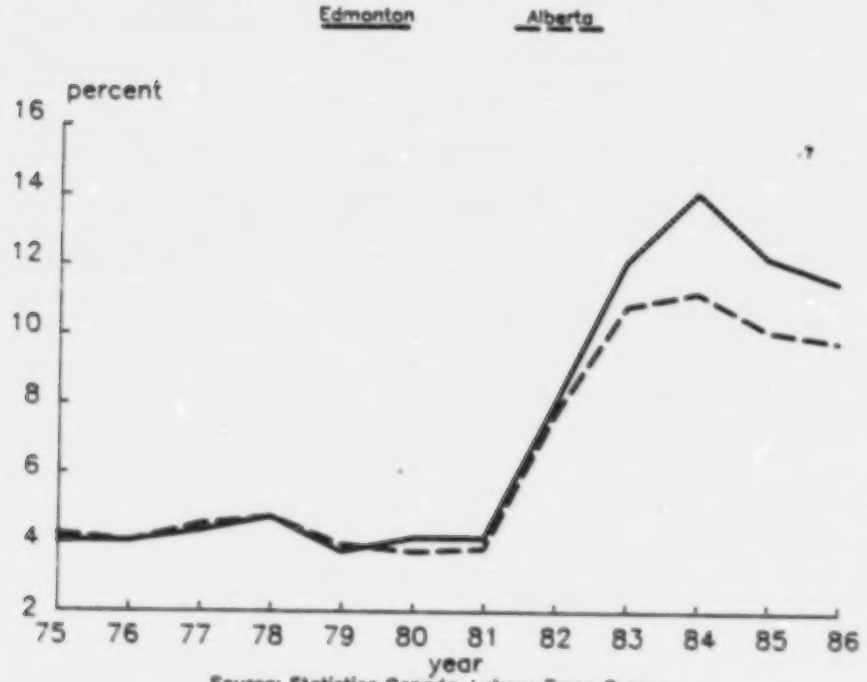
Continued Shift to Service Industry Employment

Between 1981 to 1986 there was a dramatic shift of employment shares from the goods-producing industries to the service-producing industries as the city felt the effects of the 1981-1982 economic recession and resource prices fell drastically. In this period only 1,000 net new jobs were created in Edmonton. The employment share in the goods-producing sector dropped from 26% in 1981 to 17.4% in 1986. Particularly hard hit in the goods-producing industries were manufacturing and construction whose shares of the total employment fell from 11.5% and 11.3% respectively in 1981 to 9.5% and 5.9% in 1986. These two industries combined lost approximately 25,700 jobs in this period (manufacturing 6,800 and construction 18,900). Figure 14 shows employment changes by industry between 1981 to 1986.

All industries in the service sector, with the exception of transportation, had employment growth between 1981 and 1986. Community, business and personal services had the largest employment gain, increasing its share of total employment from 28.5% to 37.5%, or approximately 32,000 jobs. Trade increased its share from 19.3% to 19.8% while F.I.R.E. increased slightly from 5.6% to 5.7%. Transportation declined in share from 37.4% to 33.3%.

Although no detailed breakdown by component of the community, business and personal service industry division is available from the data source used to measure employment in this period, estimates taken from the Employment, Earnings and Hours Survey indicate accommodation and food services had the leading employment gain, (Table C.6, Appendix C). This was followed by health and welfare and education.

Figure 15 – Unemployment Rates Edmonton and Alberta, 1975–86



Source: Statistics Canada, Labour Force Survey

3. UNEMPLOYMENT

Over the twenty-year period, 1966 to 1986, unemployment rates in Alberta and Edmonton followed similar paths (see Figure 9). Prior to 1981, both rates were moderately low; however, after 1981, rates jumped to the 10-14% range - as the effects of the economic recession were felt on both economies.

3.1 Alberta

From 1966 to 1985 the Alberta unemployment rate was consistently lower than the national rate. Only in 1986 did Alberta's jobless rate jump higher than the national rate. Throughout the 1966 to 1985 period the provincial jobless rate averaged 5.3% compared to 7.1% for Canada. Unemployment rates for Edmonton, Alberta and Canada from 1966 to 1986 are listed in Table B.7, Appendix B.

Helping to keep the provincial jobless rate below the national average throughout the 1966 to 1981 period was the high job growth in the province. In this period the Alberta labour force annual growth rate was 4.6%, compared to 3.1% at the national level.

In the 1981 to 1986 period, unemployment rates in the province soared as a result of severe job losses, particularly in manufacturing and construction, and an increasing labour force. In this period, the labour force increased from 1.198 million to 1.271 million, while employment dropped from 1.152 million to 1.146 million.

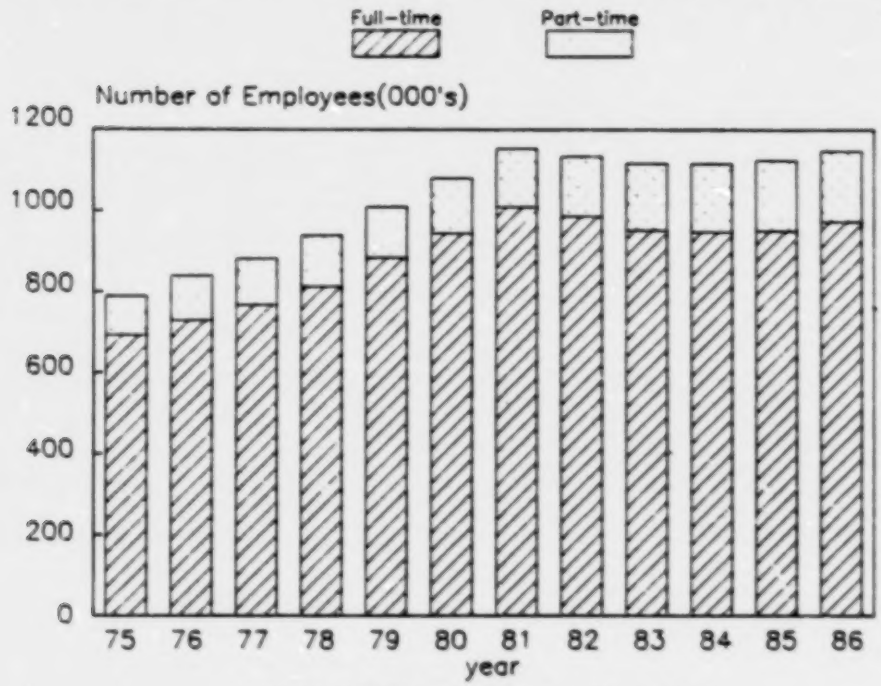
3.2 Edmonton

Edmonton's unemployment rate closely followed the provincial rate from 1966 to 1986. However, in the 1981 to 1986 period the Edmonton rate increased more rapidly then the provincial rate and has remained higher. (Figure 15)

Consistently high job growth between 1961 to 1981 helped keep Edmonton's jobless rate at low levels. In this period the city's labour force grew by 5.3% per year, compared to 4.6% for the province. By 1982 employment growth was halted, and

unemployment rates increased as the labour force continued to grow. From 1981 to 1986 the labour force grew from 377,000 to 403,000, while employment managed only a growth of 1,000 increasing to 357,000.

Figure 16
Full/Part–Time Employment, Alberta, 1975–86



Source: Statistics Canada, Labour Force Survey

4. FULL/PART-TIME EMPLOYMENT

This section analyzes the changing mix between full-time and part-time employment is Alberta. The data used for this section is taken from the Labour Force Survey for the years 1975 to 1986 and is presented in Table B.8 Appendix B. No data for Edmonton was available.

4.1 Alberta

Part-time workers have become an important force in the changing Alberta labour force. As a share of total employment, part-time employment has increased gradually since 1975. In 1975, part-time employment accounted for 12.3% of the total. With some fluctuations between 1979 to 1981, part-time employment as a share of the total increased by 3% to 15.3% in 1986. Indeed, since 1981 the only job creation in Alberta has been in part-time employment with 38,000 jobs being created. Full-time employment experienced a loss of 56,000 jobs (see Figure 16). As a comparison, the Ontario employment scene was much brighter with 300,000 full-time jobs and 145,000 part-time jobs being created. In Ontario, part-time employment as a share of the total increased from 12.0% in 1975 to 15.6% in 1986.

5. CONCLUSIONS

Both the Alberta and Edmonton labour forces have experienced three distinct phases over the 1961 and 1986 period. Each of these phases represents the three time frames used to analyze the changing employment structures in this paper. The first phase is from 1961 to 1971, the second phase from 1971 to 1981, and the third phase is the period 1981 to 1986.

Overall, both labour forces are now dominated by service industry jobs. Indeed since 1981, all job growth has occurred in the service producing industries; particularly community business and personal services, and trade. Information sector growth has not continued its rapid pace leading into the 1980's.

Phase I, 1961 to 1971

The first phase saw the Alberta economy transformed to a more service-dominated urban economy. This period was characterized by strong labour force growth at the urban level, resulting from an influx of agricultural workers into the urban areas. In the ten year period, 1961 to 1971, Edmonton's population increased by 58% to 436,264. The result of the increases to urban population was the creation of service sector jobs necessary in the urban environment particularly in the community business and personal services industry division.

Phase II, 1971 to 1981

During the second phase, 1971 to 1981, both labour forces experienced fast growth in all industries. The share of the labour force in the goods-producing industries remained the same as a result of the resource boom of the late 1970's. Strong growth in the goods-producing industries, as well as rising personal disposable incomes, enabled the service-producing sector to maintain its share also. In this period, urban population growth was slower than the preceeding period, increasing by 19% to 521,205 in Edmonton.

Phase III, 1981 to 1986

The most recent phase, 1981 to 1986, has been characterized by job losses as a result of the 1981-82 economic recession, and a pronounced shift to service-producing industry employment. The provincial economy has still not fully recovered from the effects of the recession and the Edmonton labour force has only just begun to inch ahead of 1981 levels.

The effects of the recession were so great, in fact, that they are still being felt in 1987. Changes in real income in Alberta has hindered demand for, and hence output for goods and services, while variations in growth rate of productivity may have resulted in less job growth in some industries (Picot, 1986). Leading into 1986, the province has been hit by low prices for many of its resources, especially oil and gas and agricultural products. Even if resource prices rose dramatically once again, it is unlikely this would lead to the rapid employment growth experience in the 1970's, since there has been increased productivity in the resource industries. Using the mining sectors as an example, real output per employee has increased steadily since 1981, while the number of employees in 1985 was less than in 1981 (see Table 5).

The only industries achieving job growth in the 1981 to 1986 period were trade; community, business and personal services; and public administration. For the most part, these are industries containing large numbers of part-time employees with lower incomes. The effect of this has been to reduce levels of personal disposable income and further reduce demand for goods and services.

Implications

The Alberta and Edmonton labour markets of the late 1980's appear to be in a state of transition that has resulted from the factors outlined in the preceding section such as low resource prices and lower real incomes. Factors likely to influence the future labor market include changes to real income levels, lifestyles and family size which affect demand and consequently employment in particular industries. Future international events such as free trade or growing protectionism, exchange

Table 5

Output per Employee, Alberta Mining, 1981 to 1985

	Mining Output*	Employees	Output Per Employee	Output Per Employee ($ 1981)
1981	9,482	68,250	138,930	138,930
1982	11,568	63,583	181,935	164,201
1983	13,238	64,584	204,973	174,891
1984	15,106	69,000	218,927	181,833
1985	16,767	67,500	248,400	200,000

*Output is measured as GDP at Factor Cost; ($ Millions), deflated using the 1981 Consumer Price Index.

Source: Alberta Economic Accounts, 1985; Statistics Canada, Labour Force Survey.

rates, global competition and subsidies may affect the demand for goods, the industrial mix and hence employment. In addition, technological changes are likely to affect the demand for labour, leading to a recomposition of the labour force.

As part of the ongoing monitoring activity by the Corporate Forecasting Group, employment forecasts based on the information contained in this paper and Research Paper 18, Labour Force Participation in the Local Labour Market: An Economic Analysis are being prepared. These forecasts will present estimates of employment by industry division for Edmonton and Alberta.

REFERENCES

Clarkson Gordon, Woods Gordon, Tomorrow's Customers, 20th Edition, 1986.

Mansell and Wright, An Analysis of Economic Development, Growth and Population Change in Alberta, 1975-1985, 1977.

Picot, W. Garnett, Canada's Industries: Growth in Jobs over Three Decades, A Review of the Changing Industrial Mix of Employment 1951 - 1984, Statistics Canada, Social and Economic Studies Division, 1986.

Walters, Patrick, Labour Force Participation in the Local Labour Market: Edmonton and Alberta, Research Paper 18, Corporate Forecasting Group, Planning and Building Department, City of Edmonton, 1987.

APPENDIX A

Appendix A

Calculation of Compound Annual Labour Force Growth Rate

Calculation of compound real annual labour force growth rate for the periods, 1961 to 1971 and 1971 to 1981, were found using the following equation:

$$LF_{1971} = LF_{1961} (1 + r)^{10}$$

Where: LF = labour force
10 = time interval in years
r = annual rate of growth expressed as a decimal

This is, in effect, a modification of the equation commonly used to calculate interest accumulation when compounded every period. The calculations were made using Lotus 123 software.

APPENDIX B

Table B.1

Labour Force by Industry Division, Alberta,1961-1981

	Labour Force			Percentage Distribution		
	1961	1971	1981	1961	1971	1981
Service-Producing Industries:						
Distributive	122905	152535	280140	25.1	22.2	23.3
Producer	21880	42340	129585	4.5	6.2	10.8
Consumer	39985	59720	123810	8.2	8.7	10.3
Commercial	184770	254595	533535	37.7	37.0	44.5
Non-commercial	82881	145825	237885	16.9	21.2	19.8
TOTAL SERVICES	267651	400420	771420	54.7	58.2	64.3
Goods Producing Industries:						
Agriculture	103573	86705	82755	21.2	12.6	6.9
Manufacturing	42217	62425	108005	8.6	9.1	9.0
Construction	37360	52430	128805	7.6	7.6	10.7
Other Goods	25599	35080	93830	5.2	5.1	7.8
TOTAL GOODS	208749	236640	413395	42.6	34.4	34.5
MISCELLANEOUS	13111	51220	15160	2.7	7.4	1.3
INFORMATION	98002	171395	327270	20.0	24.9	27.3
TOTAL LABOUR FORCE	489511	688280	1199975	100.0	100.0	100.0

Source:Statistics Canada, 1961 Cat.94-543
1971 Cat.94-742
1981 Cat.93-969

TABLE B.2
LABOUR FORCE BY INDUSTRY DIVISION - ALBERTA, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	361961	127550	489511	450530	237750	688280	723730	476245	1199975
	GOODS PRODUCING	183958	24791	208749	196095	40545	236640	334915	78480	413395
	SERVICE PROD.	178003	102759	280762	254435	197205	451640	388815	397765	786580
	INFORMATION	63906	34096	98002	100815	70580	171395	169405	157865	327270
	AGRICULTURE	90033	13540	103573	65775	20930	86705	63615	19140	82755
	FORESTRY	2698	86	2784	1930	135	2065	3395	655	4050
	FISHING & TRAPP	822	17	839	205	10	215	230	50	280
	MINING	15124	2226	17350	22610	3985	26595	60060	16885	76945
	MANUFACTURING	34923	7294	42217	50225	12200	62425	81990	26015	108005
1	food & bev	10511	2806	13317	12385	3590	15975	13825	5410	19235
7	clothing	1049	689	1738	390	1345	1735	445	1915	2360
8	wood	2823	282	3105	4240	435	4675	6760	1240	8000
9	furniture	911	133	1044	1415	445	1860	2640	1090	3730
10	paper	1154	173	1327	1295	290	1585	2750	675	3425
11	printing	2824	861	3685	3845	1590	5435	5915	4425	10340
12	primary metal	1153	55	1208	3190	235	3425	4525	465	4990
13	metal fab	3456	267	3723	5710	660	6370	11610	1725	13335
14	machinery	670	64	734	1900	235	2135	6975	1210	8185
15	transport	1663	127	1790	3260	460	3720	4215	900	5115
16	electrical	330	70	400	1105	405	1510	1745	830	2575
17	non-metallic	3049	396	3445	3355	485	3840	6590	1190	7780
18	petroleum	2075	344	2419	2150	380	2530	2940	750	3690
19	chemical	2759	328	3087	3045	495	3540	6255	1245	7500
	CONSTRUCTION	36184	1176	37360	49835	2595	52430	115325	13480	128805
	general	21139	688	21827	27350	1285	28635	50795	6050	56845
	special	15045	488	15533	22490	1305	23795	64530	7430	71960
	TRANSPORTATION	40913	6522	47435	44955	9590	54545	74980	25410	100370
	transportation	28208	1779	29985	28815	3040	31855	47495	11010	58505
	storage	2882	360	3242	1970	275	2245	2865	645	3510
	communication	5651	3931	9582	8660	5575	14235	14295	1150	15445
	power,gas,water	4174	452	4626	5515	690	6205	10300	2255	12555
	TRADE	56027	24069	80096	65885	38315	104200	112670	90010	202680
	wholesale	22858	4625	27483	24235	6205	30440	45605	16335	61940

retail	33189	19444	52613	41650	32110	73760	67065	73765	140830
F.I.R.E.	7940	6755	14695	11680	13580	25260	24975	40885	65860
finance	3620	4305	7925	5370	8870	14240	8550	24285	32815
insurance	4320	2450	6770	6315	4710	11025	13670	12320	25990
SERVICES	35057	56367	91424	68915	99575	168490	131950	204790	336740
education	8280	12704	20984	21825	27340	49165	28775	43775	72550
health welfare	5709	17561	23270	9040	33485	42525	13710	62945	76655
amusement	2148	1096	3244	3515	2570	6085	5585	5085	10670
services to bus	4837	2348	7185	11350	5730	17080	36805	26920	63725
personal	3486	10404	13890	3590	8805	12395	3505	10985	14490
accomodation	7266	9705	16971	10405	10590	20995	23510	40860	64370
ADMINISTRATION	32226	6401	38627	39940	14195	54135	53055	35625	88680

Source:Statistics Canada, 1961 Cat.94-543
1971 Cat.94-742
1981 Cat.93-969

TABLE B.3

LABOUR FORCE SHARE BY INDUSTRY DIVISION - ALBERTA, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	GOODS PRODUCING	50.82	19.44	42.84	43.53	17.05	34.38	46.28	18.48	34.45
	SERVICE PROD.	49.18	80.56	57.38	56.47	82.95	65.62	53.72	83.52	65.55
	AGRICULTURE	24.87	10.62	21.16	14.60	8.80	12.60	8.79	4.02	6.90
	FORESTRY	0.75	0.07	0.57	0.43	0.06	0.30	0.47	0.14	0.34
	FISHING & TRAPP	0.23	0.01	0.17	0.05	0.00	0.03	0.03	0.01	0.02
	MINING	4.18	1.75	3.54	5.02	1.68	3.86	8.30	3.55	6.41
	MANUFACTURING	9.65	5.72	8.62	11.15	5.13	9.07	11.33	5.46	9.00
1	food & bev	2.90	2.20	2.72	2.75	1.51	2.32	1.91	1.14	1.60
7	clothing	0.29	0.54	0.36	0.09	0.57	0.25	0.06	0.40	0.20
8	wood	0.78	0.22	0.63	0.94	0.18	0.68	0.93	0.26	0.67
9	furniture	0.25	0.10	0.21	0.31	0.19	0.27	0.36	0.23	0.31
10	paper	0.32	0.14	0.27	0.29	0.12	0.23	0.38	0.14	0.29
11	printing	0.78	0.68	0.75	0.65	0.67	0.79	0.82	0.93	0.86
12	primary metal	0.32	0.04	0.25	0.71	0.10	0.50	0.63	0.10	0.42
13	metal fab	0.95	0.21	0.78	1.27	0.28	0.93	1.60	0.36	1.11
14	machinery	0.19	0.05	0.15	0.42	0.10	0.31	0.96	0.25	0.68
15	transport	0.48	0.10	0.37	0.72	0.19	0.54	0.58	0.19	0.43
16	electrical	0.09	0.05	0.08	0.25	0.17	0.22	0.24	0.17	0.21
17	non-metallic	0.84	0.31	0.70	0.74	0.20	0.56	0.91	0.25	0.65
18	petroleum	0.57	0.27	0.49	0.48	0.16	0.37	0.41	0.16	0.31
19	chemical	0.76	0.28	0.63	0.68	0.21	0.51	0.86	0.26	0.63
	CONSTRUCTION	10.00	0.92	7.63	11.06	1.09	7.82	15.93	2.83	10.73
	general	5.84	0.54	4.46	6.07	0.54	4.16	7.02	1.27	4.74
	special	4.16	0.38	3.17	4.99	0.55	3.46	8.92	1.56	6.00
	TRANSPORTATION	11.30	5.11	9.69	9.98	4.03	7.92	10.38	5.34	8.36
	transportation	7.79	1.39	6.13	6.40	1.28	4.63	6.56	2.31	4.88
	storage	0.80	0.28	0.66	0.44	0.12	0.33	0.40	0.14	0.29
	communication	1.56	3.08	1.96	1.92	2.34	2.07	1.98	0.24	1.29
	power,gas,water	1.15	0.35	0.95	1.22	0.29	0.90	1.42	0.47	1.05
	TRADE	15.48	18.87	16.36	14.62	16.12	15.14	15.57	18.90	16.89
	wholesale	6.32	3.63	5.61	5.38	2.61	4.42	6.30	3.43	5.16
	retail	9.16	15.24	10.75	9.24	13.51	10.72	9.27	15.49	11.74

F.I.R.E.	2.19	5.30	3.00	2.59	5.71	3.67	3.45	8.58	5.49
finance	1.00	3.38	1.62	1.19	3.73	2.07	1.18	5.10	2.73
insurance	1.19	1.92	1.38	1.40	1.98	1.60	1.89	2.59	2.17
SERVICES	9.69	44.19	18.68	15.30	41.88	24.48	18.23	43.00	28.06
education	2.29	9.96	4.29	4.84	11.50	7.14	3.98	9.19	6.05
health welfare	1.58	13.77	4.75	2.01	14.08	6.18	1.89	13.22	6.39
amusement	0.59	0.86	0.66	0.78	1.08	0.88	0.77	1.07	0.89
services to bus	1.34	1.84	1.47	2.52	2.41	2.48	5.09	5.65	5.31
personal	0.96	8.16	2.84	0.80	3.70	1.80	0.48	2.31	1.21
accomodation	2.01	7.61	3.47	2.31	4.45	3.05	3.25	8.58	5.36
ADMINISTRATION	8.90	5.02	7.89	8.87	5.97	7.87	7.33	7.48	7.39

Source: Table B.2

TABLE 8.4
ANNUAL GROWTH OF LABOUR FORCE BY INDUSTRY DIVISION - ALBERTA

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES				2.21	6.43	3.47	4.85	7.19	5.72
	GOODS PRODUCING				0.64	5.04	1.26	5.50	6.83	5.74
	SERVICE PROD.				3.64	6.74	4.87	4.33	7.27	5.70
	AGRICULTURE				-3.09	4.45	-1.76	-0.33	-0.89	-0 47
	FORESTRY				-3.29	4.61	-2.94	5.81	17.11	6 97
	FISHING & TRAPP				-12.97	-5.17	-12.73	1.16	17.46	2.68
	MINING				4.10	6.00	4.36	10.26	15.53	11.21
	MANUFACTURING				3.70	5.28	3.99	5.02	7.87	5.64
1	food & bev				1.65	2.49	1.84	1.11	4.19	1 87
7	clothing				-9.42	6.92	-0.02	1.33	3.60	3.12
8	wood				4.15	4.43	4.18	4.78	11.04	5.52
9	furniture				4.50	12.84	5 95	6.44	9.37	7 21
10	paper				1.16	5.30	1.79	7.82	8.82	8.01
11	printing				3.13	6.33	3.96	4.40	10.78	6 64
12	primary metal				10.71	15.63	10.98	3.56	7.06	3.84
13	metal fab				5.15	9.47	5.52	7.35	10.08	7.67
14	machinery				10.99	13.89	11.27	13.89	17.81	14.38
15	transport				6.96	13.74	7.59	2.60	6.94	3.24
16	electrical				12.85	19.19	14.21	4.88	7.44	5.48
17	non-metallic				0.96	2.05	1.09	6.98	9.39	7.32
18	petroleum				0.36	1.00	0.45	3.18	7.04	3.85
19	chemical				0.99	4.20	1.38	7.46	9.66	7.80
	CONSTRUCTION				3.25	8.24	3.45	8.75	17.91	9.40
	general				2.61	6.45	2.75	6.39	16.76	7.10
	special				4.10	10.34	4.36	11.12	19.00	11.70
	TRANSPORTATION				0.95	3.93	1.41	5.25	10.23	6.29
	transportation				0.21	5.50	0.61	5 12	13.73	6.27
	storage				-3.73	-2.66	-3.61	3.82	8.90	4.57
	communication				4.36	3.56	4.04	5.14	-14.60	0.82
	power,gas,water				2.83	4.32	2.98	6.45	12.57	7.30
	TRADE				1.63	4.76	2.67	5.51	8.92	6.88
	wholesale				0.59	2.98	1.03	6.53	10.16	7.36
	retail				2.30	5.14	3.44	4.88	8.67	6.68

F.I.R.E.	3.94	7.23	5.57	7.90	11.65	10.06
finance	4.02	7.50	6.04	4.76	10.59	8.71
insurance	3.87	6.75	5.00	8.03	10.09	8.95
SERVICES	6.99	5.86	6.30	6.71	7.48	7.17
education	10.18	7.97	8.89	2.80	4.82	3.97
health welfare	4.70	6.67	6.21	4.25	6.52	6.07
amusement	5.05	8.90	6.49	4.74	7.06	5.78
services to bus	8.90	9.33	9.05	12.48	16.73	14.07
personal	0.29	-1.65	-1.13	-0.24	2.24	1.57
accomodation	3.66	0.88	2.15	8.49	14.46	11.86
ADMINISTRATION	2.17	8.29	3.43	2.88	9.64	5.06

Source: Table 8.2

TABLE 8.5

LABOUR FORCE COMPOSITION BY INDUSTRY DIVISION - ALBERTA, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	73.94	26.06	100.00	65.46	34.54	100.00	60.31	39.69	100.00
	GOODS PRODUCING	88.12	11.88	100.00	82.87	17.13	100.00	81.02	18.98	100.00
	SERVICE PROD.	63.40	36.60	100.00	56.34	43.66	100.00	49.43	50.57	100.00
	AGRICULTURE	86.93	13.07	100.00	75.86	24.14	100.00	76.87	23.13	100.00
	FORESTRY	96.91	3.09	100	93.46	6.54	100	83.83	16.17	100
	FISHING & TRAPP	97.97	2.03	100	95.35	4.65	100	82.14	17.86	100
	MINING	87.17	12.83	100	85.02	14.98	100	78.06	21.94	100
	MANUFACTURING	82.72	17.28	100	80.46	19.54	100	75.91	24.09	100
1	food & bev	78.93	21.07	100	77.53	22.47	100	71.87	28.13	100
7	clothing	60.36	39.64	100	22.48	77.52	100	18.86	81.14	100
8	wood	90.92	9.08	100	90.70	9.30	100	84.50	15.50	100
9	furniture	87.26	12.74	100	76.08	23.92	100	70.78	29.22	100
10	paper	86.96	13.04	100	81.70	18.30	100	80.29	19.71	100
11	printing	76.64	23.36	100	70.75	29.25	100	57.21	42.79	100
12	primary metal	95.45	4.55	100	93.14	6.86	100	90.68	9 32	100
13	metal fab	92.83	7.17	100	89.64	10.36	100	87.06	12.94	100
14	machinery	91.28	8.72	100	88.99	11.01	100	85.22	14.78	100
15	transport	92.91	7.09	100	87.63	12.37	100	82.40	17.60	100
16	electrical	82.50	17.50	100	73.18	26.82	100	67.77	32.23	100
17	non-metallic	88.51	11.49	100	87.37	12.63	100	84.70	15.30	100
18	petroleum	85.78	14.22	100	84.98	15.02	100	79.67	20.33	100
19	chemical	89.37	10.63	100	86.02	13.98	100	83.40	16.60	100
	CONSTRUCTION	96.85	3.15	100	95.05	4.95	100	89.53	10.47	100
	general	96.85	3.15	100	95.51	4.49	100	89.36	10.64	100
	special	96.86	3.14	100	94.52	5.48	100	89.67	10.33	100
	TRANSPORTATION	86.25	13.75	100	82.42	17.58	100	74.68	25.32	100
	transportation	94.07	5.93	100	90.46	9.54	100	81.18	18.82	100
	storage	88.90	11.10	100	87.75	12.25	100	81.62	18.38	100
	communication	58.98	41.02	100	60.84	39.16	100	92.55	7.45	100
	power,gas,water	90.23	9.77	100	88.88	11.12	100	82.04	17.96	100
	TRADE	69.95	30.05	100	63.23	36.77	100	55.59	44.41	100
	wholesale	83.17	16.83	100	79.62	20.38	100	73.63	26.37	100
	retail	63.04	36.96	100	56.47	43.53	100	47.62	52.38	100

F.I.R.E.	54.03	45.97	100	46.24	53.76	100	37.92	62.08	100
finance	45.68	54.32	100	37.71	62.29	100	26.06	73.94	100
insurance	63.81	36.19	100	57.28	42.72	100	52.60	47.40	100
SERVICES	38.35	61.65	100	40.90	59.10	100	39.18	60.82	100
education	39.46	60.54	100	44.39	55.61	100	39.66	60.34	100
health welfare	24.53	75.47	100	21.26	78.74	100	17.89	82.11	100
amusement	66.21	33.79	100	57.76	42.24	100	52.34	47.66	100
services to bus	67.32	32.68	100	66.45	33.55	100	57.76	42.24	100
personal	25.10	74.90	100	28.96	71.04	100	24.19	75.81	100
accomodation	42.81	57.19	100	49.56	50.44	100	36.52	63.48	100
ADMINISTRATION	83.43	16.57	100	73.78	26.22	100	59.83	40.17	100

Source: Table B.2

Table B.6

Percentage Distribution of Gross Domestic Product at Factor Cost, by Industry, Alberta, 1971 and 1981

Industry Division	1971	1981
Agriculture	6.2	4.4
Forestry	0.2	0.1
Mining	16.1	21.4
Manufacturing	9.0	8.1
Construction	8.4	8.1
Transportation	9.1	6.7
Utilities	2.4	2.6
Trade	10.7	9.1
F.I.R.E.(1)	13.2	20.2
Community, Business and Personal Services	18.2	14.2
Public Administration	6.5	5.1

(1) Includes natural resource royalties

Source: Alberta Economic Accounts, 1985, Alberta Business of Statistics

Table B.7

Unemployment Rates, Canada, Alberta and Edmonton, 1966 to 1986

	Canada	Alberta	Edmonton
1966	3.4	2.5	2.4
1967	3.8	2.7	3.0
1968	4.5	3.3	3.4
1969	4.4	3.4	3.3
1970	5.7	5.1	4.6
1971	6.2	5.7	5.2
1972	6.2	5.6	5.1
1973	5.5	5.3	4.7
1974	5.3	3.5	3.1
1975	6.9	4.1	4.0
1976	7.1	4.0	4.0
1977	8.1	4.5	4.3
1978	8.3	4.7	4.7
1979	7.4	3.9	3.7
1980	7.5	3.7	4.1
1981	7.5	3.8	4.1
1982	11.0	7.7	8.0
1983	11.9	10.8	12.1
1984	11.3	11.2	14.1
1985	10.5	10.1	12.2
1986	9.6	9.8	11.5

Source: Statistics Canada, The Labour Force and Historical Labour Force Statistics.

Note: Edmonton Data, 1966-75, obtained from Telephone Conversation with Statistics Canada.

Table B.8

Full/Part-Time Employment (thousands) Alberta and Ontario, 1975 to 1986

	Alberta				Ontario			
	Full-Time	%	Part-Time	%	Full-Time	%	Part-Time	%
1975	692	87.7	96	12.3	3,146	88.0	430	12.0
1976	728	86.9	110	13.1	3,200	87.8	443	12.2
1977	766	87.0	114	13.0	3,233	87.2	475	12.8
1978	811	86.6	126	13.4	3,333	86.9	502	13.1
1979	882	87.5	125	12.5	3,443	86.2	550	13.8
1980	942	87.4	136	12.6	3,485	86.0	568	14.0
1981	1,007	87.5	144	12.5	3,566	85.5	605	14.5
1982	984	86.9	148	13.1	3,444	84.7	623	15.3
1983	950	85.2	165	14.8	3,440	84.0	655	16.0
1984	946	84.9	168	15.1	3,569	84.1	674	15.9
1985	948	84.4	175	15.6	3,707	84.2	695	15.8
1986	971	84.7	175	15.3	3,846	84.4	708	15.6

Source: Statistics Canada, Cansim, D768584, D770391, D770394, D770409, D770412, D769006/

APPENDIX C

Table C.1
Labour Force by Industry Division, Edmonton, 1961-1981

	Labour Force			Percentage Distribution		
	1961	1971	1981	1961	1971	1981
Service-Producing Industries						
Distributive	41102	56070	98345	31.2	25.6	26.3
Producer	8342	15600	44620	6.3	7.1	11.9
Consumer	13057	19285	19285	9.9	8.8	5.2
Total Commercial	62501	90955	162250	47.5	41.6	43.4
Non-commercial	30346	57050	87995	23.1	26.1	23.6
TOTAL SERVICES	92847	148005	250245	70.6	67.7	67.0
Goods-Producing Industries:						
Agriculture	1346	3745	4400	1.0	1.7	1.2
Manufacturing	17477	24980	41345	13.3	11.4	11.1
Construction	12442	18368	39860	9.5	8.4	10.7
Other Goods	4248	6590	14370	3.2	3.0	3.8
TOTAL GOODS	35513	53683	99975	27.0	24.5	26.8
MISCELLANEOUS	3216	17077	23310	2.4	7.8	6.2
INFORMATION	35806	67645	123995	27.2	30.9	33.2
TOTAL LABOUR FORCE	131578	218765	373530	100.0	100.0	100.0

Source: Statistics Canada, 1961 Cat.94-543
1971 Cat.94-742
1981 Cat.93-969

TABLE C.2

LABOUR FORCE BY INDUSTRY DIVISION - EDMONTON, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	90815	40761	131576	138435	80330	218765	217845	155685	373530
	GOODS PRODUCING	31028	4485	35513	45783	7900	53683	81945	18030	99975
	SERVICE PROD.	59787	36276	96063	92652	72430	165082	135900	137655	273555
	AGRICULTURE	1207	139	1346	2770	975	3745	2925	1475	4400
	FORESTRY	118	11	129	225	30	255	340	165	505
	FISHING & TRAPP	22	1	23	15	0	15	20	10	30
	MINING	2594	245	2839	3535	630	4165	8125	1465	9590
	MANUFACTURING	13973	3504	17477	19925	5055	24980	31365	9980	41345
1	food & bev	4117	1183	5300	5045	1340	6385	4900	2020	6920
7	clothing	233	906	1139	315	1130	1445	295	1385	1680
8	wood	788	130	918	820	100	920	1445	330	1775
9	furniture	514	84	598	710	225	935	910	330	1240
10	paper	320	43	363	235	50	285	495	145	640
11	printing	994	300	1294	1370	510	1880	2145	1575	3720
12	primary metal	745	35	780	1850	165	2015	2160	245	2405
13	metal fab	1704	150	1854	2755	290	3045	5225	740	5965
14	machinery	258	25	283	615	75	690	2895	390	3285
15	transport	632	74	706	820	120	940	1400	270	1670
16	electrical	102	14	116	390	85	475	585	180	765
17	non-metallic	770	50	820	1200	100	1300	2560	360	2920
18	petroleum	980	133	1113	1005	85	1090	1350	210	1560
19	chemical	1355	234	1589	1470	265	1735	3135	680	3815
	CONSTRUCTION	12008	434	12442	17418	950	18368	35670	4190	39860
	general	6589	238	6827	8940	460	9400	14885	1860	16745
	special	5419	196	5615	8470	490	8960	20780	2330	23110
	TRANSPORTATION	12705	1944	14649	18455	3935	22390	25760	9080	34840
	transportation	8981	729	9710	10330	1185	11515	15825	3670	19495
	storage	427	76	503	285	50	335	520	180	700
	communication	2191	988	3179	3955	2395	6350	5925	4495	10420
	power,gas,water	1106	151	1257	1895	260	2155	3500	745	4245
	TRADE	18762	8948	27710	23385	14485	37870	38445	29285	67730
	wholesale	8720	1928	10648	9170	2490	11660	16765	5690	22455
	retail	10042	7020	17062	14195	12010	26205	21675	23590	45265

F.I.R.E.	2929	2538	5467	4415	5145	9560	8930	14410	23340
finance	1157	1446	2603	1875	2840	4715	2965	7835	10800
insurance	1772	1092	2864	1795	1355	3150	4860	4580	9440
SERVICES	12567	18500	31067	25040	34515	59555	45535	68025	113560
education	2977	3684	6661	8630	10075	18705	10570	15150	25720
health welfare	2270	6204	8474	3895	11630	15525	5110	21470	26580
amusement	656	463	1119	1365	925	2290	1920	1900	3820
services to bus	1937	938	2875	3965	2075	6040	12400	8880	21280
personal	1154	3606	4760	1285	3230	4515	1225	3500	4725
accomodation	1869	2619	4488	3260	4595	7855	8005	11825	19830
ADMINISTRATION	11682	3529	15211	15435	7385	22820	19190	16505	35695

Source:Statistics Canada, 1981 Cat.94-543
1971 Cat.94-742
1981 Cat.93-989

TABLE C.3

LABOUR FORCE SHARE BY INDUSTRY DIVISION - EDMONTON, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	GOODS PRODUCING	34.17	11.00	26.99	33.07	9.83	24.54	37.62	11.58	26.76
	SERVICE PROD.	65.83	89.00	73.01	66.93	90.17	75.46	62.38	88.42	73.24
	AGRICULTURE	1.33	0.34	1.02	2.00	1.21	1.71	1.34	0.95	1.18
	FORESTRY	0.13	0.03	0.10	0.16	0.04	0.12	0.16	0.11	0.14
	FISHING & TRAPP	0.02	0.00	0.02	0.01	0.00	0.01	0.01	0.01	0.01
	MINING	2.86	0.60	2.16	2.55	0.78	1.90	3.73	0.94	2.57
	MANUFACTURING	15.39	8.60	13.28	14.39	6.29	11.42	14.40	6.41	11.07
1	food & bev	4.53	2.90	4.03	3.64	1.67	2.92	2.25	1.30	1.85
7	clothing	0.26	2.22	0.87	0.23	1.41	0.66	0.14	0.89	0.45
8	wood	0.87	0.32	0.70	0.59	0.12	0.42	0.66	0.21	0.48
9	furniture	0.57	0.21	0.45	0.51	0.28	0.43	0.42	0.21	0.33
10	paper	0.35	0.11	0.28	0.17	0.06	0.13	0.23	0.09	0.17
11	printing	1.09	0.74	0.98	0.99	0.63	0.86	0.98	1.01	1.00
12	primary metal	0.82	0.09	0.59	1.34	0.21	0.92	0.99	0.16	0.64
13	metal fab	1.88	0.37	1.41	1.99	0.38	1.39	2.40	0.48	1.60
14	machinery	0.28	0.06	0.22	0.44	0.09	0.32	1.33	0.25	0.88
15	transport	0.70	0.18	0.54	0.59	0.15	0.43	0.64	0.17	0.45
16	electrical	0.11	0.03	0.09	0.28	0.11	0.22	0.27	0.12	0.20
17	non-metallic	0.85	0.12	0.62	0.87	0.12	0.58	1.18	0.23	0.78
18	petroleum	1.08	0.33	0.85	0.73	0.11	0.50	0.62	0.13	0.42
19	chemical	1.49	0.57	1.21	1.08	0.33	0.79	1.44	0.44	1.02
	CONSTRUCTION	13.22	1.06	9.46	12.58	1.18	8.40	16.37	2.69	10.67
	general	7.26	0.58	5.19	6.46	0.57	4.30	6.83	1.19	4.48
	special	5.97	0.48	4.27	6.12	0.61	4.10	9.54	1.50	6.19
	TRANSPORTATION	13.99	4.77	11.13	13.33	4.90	10.23	11.82	5.83	9.33
	transportation	9.89	1.79	7.38	7.48	1.48	5.28	7.28	2.36	5.22
	storage	0.47	0.19	0.38	0.21	0.08	0.15	0.24	0.12	0.19
	communication	2.41	2.42	2.42	2.86	2.98	2.90	2.72	2.89	2.79
	power,gas,water	1.22	0.37	0.96	1.37	0.32	0.99	1.61	0.48	1.14
	TRADE	20.86	21.95	21.08	18.89	18.03	17.31	17.65	18.81	18.13
	wholesale	9.60	4.73	8.09	6.62	3.10	5.33	7.70	3.65	6.01
	retail	11.06	17.22	12.97	10.25	14.95	11.98	9.95	15.15	12.12

F.I.R.E.	3.23	6.23	4.16	3.19	6.40	4.37	4.10	9.26	6.25
finance	1.27	3.55	1.98	1.35	3.54	2.16	1.36	5.03	2.89
insurance	1.95	2.68	2.18	1.30	1.69	1.44	2.23	2.94	2.53
SERVICES	13.84	45.39	23.61	18.09	42.97	27.22	20.90	43.69	30.40
education	3.28	9.04	5.06	6.23	12.54	8.55	4.85	9.73	6.89
health welfare	2.50	15.22	6.44	2.81	14.48	7.10	2.35	13.79	7.12
amusement	0.72	1.14	0.85	0.99	1.15	1.05	0.88	1.22	1.02
services to bus	2.13	2.30	2.19	2.86	2.58	2.76	5.69	5.70	5.70
personal	1.27	8.85	3.62	0.93	4.02	2.06	0.56	2.25	1.26
accomodation	2.06	6.43	3.41	2.35	5.72	3.59	3.67	7.60	5.31
ADMINISTRATION	12.86	8.66	11.56	11.15	9.19	10.43	8.81	10.60	9.56

Source: Table C.2

TABLE C.4

ANNUAL GROWTH OF LABOUR FORCE BY INDUSTRY DIVISION - EDMONTON, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES				4.31	7.02	5.22	4.64	6.84	5.50
	GOODS PRODUCING				3.97	5.82	4.22	5.99	8.60	6.42
	SERVICE PROD.				4.48	7.16	5.56	3.91	6.63	5.18
	AGRICULTURE				8.66	21.51	10.77	0.55	4.23	1.62
	FORESTRY				6.67	10.55	7.05	4.21	18.59	7.07
	FISHING & TRAPP				-3.76	-100.00	-4.18	2.92	ERR	7.18
	MINING				3.14	9.90	3.91	8.68	8.81	8.70
	MANUFACTURING				3.61	3.73	3.64	4.64	7.04	5.17
1	food & bev				2.05	1.25	1.88	-0.29	4.19	0.81
7	clothing				3.08	2.23	2.41	-0.65	2.06	1.52
8	wood				0.40	-2.59	0.02	5.83	12.68	6.79
9	furniture				3.28	10.35	4.57	2.51	3.90	2.86
10	paper				-3.04	1.52	-2.39	7.73	11.23	8.43
11	printing				3.26	5.45	3.81	4.59	11.94	7.06
12	primary metal				9.52	16.77	9.96	1.56	4.03	1.79
13	metal fab				4.92	6.81	5.09	6.61	9.82	6.96
14	machinery				9.08	11.61	9.32	16.76	17.92	16.89
15	transport				2.64	4.95	2.90	5.49	8.45	5.92
16	electrical				14.35	19.76	15.14	4.14	7.79	4.88
17	non-metallic				4.54	7.18	4.72	7.87	13.67	8.43
18	petroleum				0.25	-4.38	-0.21	3.00	9.47	3.65
19	chemical				0.82	1.25	0.88	7.87	9.88	8.20
	CONSTRUCTION				3.79	8.15	3.97	7.43	16.00	8.06
	general				3.10	6.81	3.25	5.23	14.99	5.94
	special				4.57	9.60	4.78	9.39	16.87	9.94
	TRANSPORTATION				3.80	7.31	4.33	3.39	8.72	4.52
	transportation				1.41	4.98	1.72	4.36	11.97	5.41
	storage				-3.96	-4.10	-3.98	6.20	13.67	7.65
	communication				6.08	9.26	7.16	4.12	6.50	5.08
	power,gas,water				5.53	5.58	5.54	6.33	11.10	7.01
	TRADE				2.23	4.93	3.17	5.10	7.29	5.99
	wholesale				0.50	2.59	0.91	6.22	8.62	6.77
	retail				3.52	5.52	4.38	4.32	6.98	5.62

F.I.R.E.	4.19	7.32	5.75	7.30	10.85	9.34
finance	4.95	6.98	6.12	4.69	10.68	8.64
insurance	0.13	2.18	0.96	10.47	12.95	11.60
SERVICES	7.14	6.43	6.72	6.16	7.02	6.67
education	11.23	10.58	10.88	2.05	4.16	3.24
health welfare	5.55	6.49	6.24	2.75	6.32	5.52
amusement	7.60	7.17	7.42	3.47	7.46	5.25
services to bus	7.43	8.26	7.71	12.08	15.65	13.42
personal	1.08	-1.10	-0.53	-0.48	0.81	0.46
accomodation	5.72	5.78	5.76	9.40	9.91	9.70
ADMINISTRATION	2.83	7.66	4.14	2.20	8.37	4.58

Source: Table C.2

TABLE C.5

LABOUR FORCE COMPOSITION BY INDUSTRY DIVISION - EDMONTON, 1961,71,81

Group	Industry	1961 males	1961 females	1961 total	1971 males	1971 females	1971 total	1981 males	1981 females	1981 total
	ALL INDUSTRIES	69.02	30.98	100.00	63.28	36.72	100.00	58.32	41.68	100.00
	GOODS PRODUCING	87.37	12.63	100.00	85.28	14.72	100.00	81.97	18.03	100.00
	SERVICE PROD.	62.24	37.76	100.00	56.12	43.88	100.00	49.68	50.32	100.00
	AGRICULTURE	89.67	10.33	100.00	73.97	26.03	100.00	66.48	33.52	100.00
	FORESTRY	91.47	8.53	100.00	88.24	11.76	100.00	67.33	32.67	100.00
	FISHING & TRAPP	95.65	4.35	100.00	100.00	0.00	100.00	66.67	33.33	100.00
	MINING	91.37	8.63	100.00	84.87	15.13	100.00	84.72	15.28	100.00
	MANUFACTURING	79.95	20.05	100.00	79.76	20.24	100.00	75.86	24.14	100.00
1	food & bev	77.68	22.32	100.00	79.01	20.99	100.00	70.81	29.19	100.00
7	clothing	20.46	79.54	100.00	21.80	78.20	100.00	17.56	82.44	100.00
8	wood	85.84	14.16	100.00	89.13	10.87	100.00	81.41	18.59	100.00
9	furniture	85.95	14.05	100.00	75.94	24.06	100.00	73.39	26.61	100.00
10	paper	88.15	11.85	100.00	82.46	17.54	100.00	77.34	22.66	100.00
11	printing	76.82	23.18	100.00	72.87	27.13	100.00	57.66	42.34	100.00
12	primary metal	95.51	4.49	100.00	91.81	8.19	100.00	89.81	10.19	100.00
13	metal fab	91.91	8.09	100.00	90.48	9.52	100.00	87.59	12.41	100.00
14	machinery	91.17	8.83	100.00	89.13	10.87	100.00	88.13	11.87	100.00
15	transport	89.52	10.48	100.00	87.23	12.77	100.00	83.83	16.17	100.00
16	electrical	87.93	12.07	100.00	82.11	17.89	100.00	76.47	23.53	100.00
17	non-metallic	93.90	6.10	100.00	92.31	7.69	100.00	87.67	12.33	100.00
18	petroleum	88.05	11.95	100.00	92.20	7.80	100.00	86.54	13.46	100.00
19	chemical	85.27	14.73	100.00	84.73	15.27	100.00	82.18	17.82	100.00
	CONSTRUCTION	96.51	3.49	100.00	94.83	5.17	100.00	89.49	10.51	100.00
	general	96.51	3.49	100.00	95.11	4.89	100.00	88.89	11.11	100.00
	special	96.51	3.49	100.00	94.53	5.47	100.00	89.92	10.08	100.00
	TRANSPORTATION	86.73	13.27	100.00	82.43	17.57	100.00	73.94	26.06	100.00
	transportation	92.49	7.51	100.00	89.71	10.29	100.00	81.17	18.83	100.00
	storage	84.89	15.11	100.00	85.07	14.93	100.00	74.29	25.71	100.00
	communication	68.92	31.08	100.00	62.28	37.72	100.00	56.86	43.14	100.00
	power,gas,water	87.99	12.01	100.00	87.94	12.06	100.00	82.45	17.55	100.00
	TRADE	67.71	32.29	100.00	61.75	38.25	100.00	56.76	43.24	100.00
	wholesale	81.89	18.11	100.00	78.64	21.36	100.00	74.66	25.34	100.00
	retail	58.86	41.14	100.00	54.17	45.83	100.00	47.88	52.12	100.00

F.I.R.E.	53.58	46.42	100.00	46.18	53.82	100.00	38.26	61.74	100.00
finance	44.45	55.55	100.00	39.77	60.23	100.00	27.45	72.55	100.00
insurance	61.87	38.13	100.00	56.98	43.02	100.00	51.48	48.52	100.00
SERVICES	40.45	59.55	100.00	42.05	57.95	100.00	40.10	59.90	100.00
education	44.69	55.31	100.00	46.14	53.86	100.00	41.10	58.90	100.00
health welfare	26.79	73.21	100.00	25.09	74.91	100.00	19.22	80.78	100.00
amusement	58.62	41.38	100.00	59.61	40.39	100.00	50.26	49.74	100.00
services to bus	67.37	32.63	100.00	65.65	34.35	100.00	58.27	41.73	100.00
personal	24.24	75.76	100.00	28.46	71.54	100.00	25.93	74.07	100.00
accomodation	41.64	58.36	100.00	41.50	58.50	100.00	40.37	59.63	100.00
ADMINISTRATION	76.80	23.20	100.00	67.64	32.36	100.00	53.76	46.24	100.00

Source: Table C.2

Table C.6

Estimates of Employment in Community, Business and Personal Services Edmonton, 1983 to 1986 (in 000's)

	1983	1984	1985	1986
Education	25.8	25.8	26.2	26.5
Health and Welfare	29.4	29.3	30.9	32.7
Services to Business Management	14.4	14.2	14.1	12.4
Miscellaneous and Personal	8.6	8.3	9.4	8.9
Accommodation and Food	25.1	26.8	32.0	35.3

Source: Statistics Canada, Employment, Earnings and Hours, Catalogue #72-002